

**Case 3668**

***Conus antidiluvianus* Bruguière, 1792 (Mollusca, Gastropoda, CONIDAE): proposed conservation of prevailing usage of specific name by setting aside the unidentifiable lectotype and replacing it with a neotype**

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**Abstract.** The purpose of this application, under Article 75.5 of the Code, is to conserve prevailing usage of the specific name *Conus antidiluvianus* Bruguière, 1792 for a Neogene fossil cone shell, widely distributed in Europe. The type locality stated in the original description was an Eocene site in the east of the Paris Basin, France, and three more unlocalised specimens were said to exist in various collections. No specimen resembling the original description has since been found in this area and all of the former syntypes are believed to be lost. The type locality has long been considered to be erroneous and the name *Conus antidiluvianus* has been almost exclusively applied to the Neogene species by most authors, until relatively recently when this name was applied instead to another Eocene fossil from the central Paris Basin, replacing the widely used name *Conus parisiensis* Deshayes, 1865. In view of the mismatch between original description and type locality, *Conus antidiluvianus* Bruguière, 1792 is strictly a nomen dubium. A recent lectotype designation of the (lost) shell originally figured did nothing to clarify the identity of this species, and the present authors have elsewhere published their intention, under Article 75.1, to set aside this lectotype in favour of a specified neotype; however, it might be considered that this would not fully comply with Article 75.3.6 and so a ruling by the Commission is requested in order to maintain stability of nomenclature for this species.

**Keywords.** Nomenclature; taxonomy; CONIDAE; *Conus antidiluvianus*; *Conus parisiensis*; Paris Basin; Italy; fossil cone shells.

1. In 1792 Bruguière collaborated with E. Hwass in an account of the family CONIDAE in the 'Histoire naturelle des vers' (part 10 of the 'Encyclopedie Méthodique'). Descriptions of the Recent species in this work were by Hwass, although two fossil species, *Conus antidiluvianus* and *Conus deperditus*, were also described from specimens in Bruguière's own collection without reference to Hwass. These descriptions are attributed to Bruguière (1792). The type locality for both species was Courtagnon (Département Marne) in the eastern Paris Basin, a site of former excavations in the middle Lutetian Calcaire Grossier Formation (Fritel, 1910, p.101). *Conus antidiluvianus* Bruguière, 1792 (p. 637) was accompanied by a short, three-line diagnosis in Latin, but also an extensive description in French in which the author emphasized the slenderness of the shell compared to other cone species. The shell height was given as 'deux pouces trois lignes' (c. 61 mm) with 13 whorls, each with a tuberculate central carina. The stepped spire was said to comprise exactly one third of the shell height and the shell surface was described as covered with numerous shallow transverse [i.e. spiral] striations. Of this new gastropod Bruguière had a single specimen in his own collection and three further specimens were known to him in other collections ('Je n'en connois en tout que quatres exemplaires, qui sont dispersés dans différents cabinets de Paris') although the origins of these three syntypes, if known, were not mentioned. *Conus antidiluvianus* was stated to be very rare at Courtagnon. No illustration of the new species was given in the 1792 Volume but a figure followed six years later in the atlas of the same publication (Bruguière, 1798, pl. 347, fig. 6) issued in the year of Bruguière's death (publication date after Evenhuis, 2003). That drawing shows a moderately slender cone with an acute apex, but the carina on the whorls is barely indicated and the beading of the whorls is absent on the two final, more gradually rounded whorls.

2. Lamarck (1802, p. 386) mentioned *Conus antidiluvianus* with reference to Bruguière's description and illustration. The locality given was Courtagnon, following Bruguière. At least one specimen was stated to be in Lamarck's private collection, which Hall (1964, p. 128) later interpreted as 'the type'. There is no evidence, however, that a shell in Lamarck's 'cabinet' originally was one of the syntypes described by Bruguière. Lamarck's collection was not mentioned by Bruguière. Lamarck several times referred to this species being present in his collection, but never indicated his specimen(s) as including a 'type'.

Again a few years later Lamarck (1810, p. 442), using the same name *Conus antidiluvianus*, repeated Bruguière's description in his own words, mentioning the Courtagnon locality and giving a shell height of 62 mm. This information was largely repeated in a later edition of the same work by Deshayes (in Deshayes & Milne Edwards, 1845), but accompanied by an extensive and contradictory footnote in which Deshayes stated his eventual conclusions (already expressed in Deshayes, 1837) that Bruguière's specimen had in fact been an Italian Pliocene species.

3. Brocchi (1814, pp. 291–292, pl. 2, figs 11a-c) described and figured, as *Conus antidiluvianus* Bruguière, Neogene specimens from northern Italy. Brocchi referred to Bruguière's description and illustration as 'egregiamente descritto e mediocrementemente figurato' [excellently described and moderately well illustrated], but in his text itemized a number of differences between Bruguière's description and illustration and the numerous specimens available to him from a number of Italian localities, seemingly all of Neogene age. Here he emphasized, among other differences, that the

spiral ornament described by Bruguière as covering the last whorl, was restricted in his Italian specimens to the basal part of the shell. In spite of these differences Brocchi accepted Bruguière's name for the Italian material, without noting the large difference in age between his specimens and those supposedly from the Paris Basin. Lamarck's (1802, 1810) papers were not mentioned by Brocchi.

4. Eichwald (1830, p. 222) misspelled the original name as '*antediluvianus*', which was understandable as this was the correct Latin form, but without any explicit statement of intention this has to be considered an 'incorrect subsequent spelling' (Article 33.3). This different spelling was, however, widely used in the literature until relatively recently when the original spelling was restored (e.g. Hall, 1964 and later authors). Prevailing usage of the application of this name is herein deemed to include both spellings.

5. Deshayes (1832, p. 222 and 1833, appendix 1 in Lyell, pp. 40–41) continued to consider the name *Conus antediluvianus* to refer to a French Eocene species, although he extended the records to include sites in the central Paris Basin. However, soon afterwards in the first of his monographs of Paris Basin fossils, Deshayes (1837, p. 749, pl. 98, figs 13, 14) reassessed the species and decided that Bruguière's locality data must have been in error as, in his own experiences of collecting at Courtagnon and neighbouring localities in the eastern Paris Basin, he had never heard of any cone matching Bruguière's description being found, nor any cone of that size (except for *C. deperditus* Bruguière), and he suggested that the originally figured specimen of *C. antediluvianus* must have come from Italy. No evidence to challenge this conclusion has ever been presented since. Deshayes (1837) instead attributed the name '*Conus antediluvianus* Lam.' (not of Bruguière) to a smaller species of the genus that was known to occur in the central Paris Basin [although not at Courtagnon, except for Lamarck's (1802) unsubstantiated record].

6. Edwards (1857, pp. 191, 195), commenting on Deshayes's error in applying the name to two different taxa, introduced a new name, *Conus lamarckii*, for what he described as 'the Eocene species still miscalled *C. antediluvianus*', clearly referring to the Paris Basin form described by Deshayes (1837); however, Edwards's name was, in fact, preoccupied. Deshayes (1865, p. 418), reconsidering his 1833–1837–1845 decisions, introduced the replacement name, *Conus parisiensis*, for *C. lamarckii* Edwards, 1857 non Kiener, 1847 referring to his own (1837, pl. 98, figs 13, 14) illustrations of the central Paris Basin species. As localities he mentioned Parnes, Mouchy, Chaussy and Liancourt [central Paris Basin] but not Courtagnon [eastern Paris Basin]. He also included in the synonymy '*Conus antediluvianus*, Desh. (non Brug.)' emphasizing the difference between Bruguière's species and his own.

7. Bronn (1838, p. 1119), contrary to his earlier opinion (Bronn, 1831), applied the name '*Conus antediluvianus* Deshayes' only to Paris Basin specimens, as interpreted by Deshayes (1837, p. 749) and also referred to by Deshayes (1833). Bronn also synonymized this taxon (as '*C. antediluvianus* Deshayes, 1837' with the earlier *C. concinnus* J. Sowerby, 1821, an older species from the Ypresian London Clay Formation of London, U.K., and proposed the replacement name *Conus apenninicus* Bronn, 1838 (p. 1119, pl. 42, fig. 15; spelled as '*apenninicus*' in the explanation of the plate) for shells previously referred to as *C. antediluvianus* from the Italian Pliocene. The synonymy has not been accepted by later authors. For specimens recorded by Eichwald (1830), von Buch (1830) and Dubois de Montpéreux (1831) from Central

Paratethys localities, as well as for occurrences in Algeria, the Aquitaine and Touraine regions of France and in the Vienna Basin, Bronn applied the name *Conus acutangulus* Deshayes, 1832 [non Lamarck, 1810].

8. Kohn (1992, p. 67), discussing *C. antidiluvianus*, concluded that the marked differences from any previously described species, and the diagnosis, French description, and tableau figure were consistent and adequately identified the nominal species. Consequently, Kohn designated the shell figured in the tableau (Bruguière, 1798, pl. 347, fig. 6) as the lectotype of *C. antidiluvianus* Bruguière. Contrary to Kohn's statement, the taxon was based on four specimens (not one), present in several Paris collections, and the various literature references in which the quality of Bruguière's illustration was criticized were not mentioned. Also, his statement that the type locality Courtagnon was 'erroneous' was unsubstantiated. It is thus clear that Kohn's lectotype designation does not help to clarify the confusion surrounding the identity of Bruguière's taxon.

9. Le Renard (1992) wrote notes on the name *Conus parisiensis*, stating that this species had originally been described as *Conus antidiluvianus*, 'corrected' to *antediluvianus*. He argued that it was wrong to assume that Bruguière's shell did not originate from the Courtagnon locality but to consider it to be from the Italian 'sub-apennin', as authors had done ever since Deshayes. Le Renard did not offer any proof that the original description was indeed based on a Paris Basin specimen, but he accepted the name *C. antidiluvianus* Bruguière for the form named *C. parisiensis* by Deshayes, which in his opinion might be considered a synonym or a subspecies at the most. That concept was followed in species lists published by Le Renard & Pacaud (1995, p. 122) and Pacaud & Le Renard (1995, p. 169), where *Conus (Lithoconus) antidiluvianus* Bruguière, 1792 was listed as number GA 214–6 (in place of *C. parisiensis*) in the Paris Basin Eocene fauna, and thus considered to be a senior synonym of *C. parisiensis*. It is significant to note that *C. parisiensis* Deshayes has never, to our knowledge, been recorded from Courtagnon and is absent or extremely rare at neighbouring localities in the eastern Paris Basin (e.g. Nanteuil-le-Forêt, Damery, Fleury-la-Rivière). Despite intensive collecting over the last two centuries we have only been able to locate a single small example from Damery (Leiden collection, RGM 804 953), and a similar specimen from Damery figured by Courville et al. (2012, p. 71, fig. 5) as '*Conus (Conilithes) antidiluvianus* Hwass in Bruguière, 1792'. *C. parisiensis* is, however, relatively common at a slightly younger horizon at various localities in the central Paris Basin (e.g. Châteaurouge, Mouchy, Fercourt).

10. Under the genus *Conilithes* Swainson, 1840, Tracey & Todd (1996, p. 47) discussed Le Renard's (1992) interpretation of the Paris Basin nomenclature and concluded that *Conilithes parisiensis* was the valid name for the species in question while *C. antidiluvianus* Bruguière was a nomen dubium.

11. Merle (2008, p. 220, pl. 33, figs 3, 4) included '*Conus (Lithoconus) antidiluvianus* (Bruguière 1792)' from the Lutetian and described its colour pattern as seen under UV light in specimens from Châteaurouge and Fercourt (central Paris Basin). Courville et al., 2012 figured shells from Damery as '*Conus (Conilithes) antidiluvianus*', as noted in (9) above. In applying this name to the Eocene species these authors followed Le Renard (1992), Pacaud & Le Renard (1995) and Le Renard & Pacaud (1995).

12. *Conus antidiluvianus* Bruguière, 1792 is the type species of the genus *Conilithes* Swainson, 1840, the type genus of the family CONILITHIDAE Tucker & Tenorio, 2009. CONILITHIDAE was considered a junior synonym of CONIDAE Fleming, 1822 by Bouchet et al. (2011).

13. Apart from the earliest authors detailed above, who apparently repeated the original locality data without question, the name *C. antidiluvianus* (or *antediluvianus*) has been in prevailing use for the Italian Neogene species as first applied by Brocchi (1814) by many authors for over 150 years. A list of 79 such publications has been submitted to the Secretariat. The recent usage of this name for a smaller French species from a different area and stratum to replace the well-established name *C. parisiensis*, and the rejection of the well-known name *C. antidiluvianus* in its accepted meaning for an Italian Neogene species by Le Renard (1992) and others, is considered to be prejudicial to the stability and universality of the nomenclature of these taxa. The taxonomy of the CONOIDEA is becoming increasingly important in the sciences of toxinology and pharmacology today, and the type species of a nominal family, considered by some to be extant, might well be important in this regard.

14. Bruguière's collection was acquired after his death by the Muséum National d'Histoire Naturelle of Paris (Lamy, 1930; Sherborn, 1940). In view of the fact that the illustrated specimen no longer exists according to Mermod (in Dodge, 1946) and Hall [1964: 'The type ... could not be found in the Muséum National d'Histoire Naturelle, Paris (written communication, J. Sornay, 1964) nor was it found in the Museum d'Histoire Naturelle, Geneve (written communication, E. Lanterno, 1964; and a search by the author)'], and the 1798 figure is not consistent with any known species from the French Eocene, we consider that Kohn's (1992) lectotype designation fulfilled no useful purpose and so we propose that this lectotype should be set aside and a neotype designated in its place. As the original type locality is unsubstantiated and is generally considered erroneous, it is not possible to select a specimen from the same geographical area and stratigraphical horizon as the neotype (Article 75.3.6). The proposed neotype (Janssen et al., 2014, fig. 16) is an Italian Pliocene specimen no. MSNM i 28027 in Museo Civico di Storia Naturale at Milano, Italy, with locality data Badagnano, Rio dei Carbonari, Piacenza Province, Italy (Pliocene, Piacenzian, Castell'Arquato Formation), which is consistent with Brocchi's (1814) concept of the name, the concept that has been in prevailing usage since Deshayes (1837, 1845).

15. The International Commission on Zoological Nomenclature is accordingly asked:

- (1) To use its plenary power to set aside the lectotype of *Conus antidiluvianus* Bruguière, 1792 designated by Kohn (1992) and replace it with a neotype, specimen MSNM i 28027 in Museo Civico di Storia Naturale di Milano, Italy, as detailed in paragraph 14 above;
- (2) to place on the Official List of Specific Names in Zoology the name *antidiluvianus* Bruguière, 1792, as published in the binomen *Conus antidiluvianus* and as represented by the neotype proposed in (1) above.

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